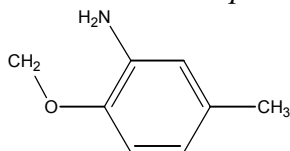


***p*-CRESIDINE**
CAS No. 120-71-8

First Listed in the *Second Annual Report on Carcinogens*



CARCINOGENICITY

p-Cresidine is *reasonably anticipated to be a human carcinogen* based on sufficient evidence of carcinogenicity in experimental animals (NCI 142, 1979; IARC S.4, 1982; IARC S.7, 1987). When administered in the diet, *p*-cresidine increased the incidences of squamous cell and transitional cell carcinomas of the urinary bladder and olfactory neuroblastomas in rats of both sexes and neoplastic liver nodules in male rats. When administered in the diet, *p*-cresidine increased the incidences of carcinomas of the urinary bladder in mice of both sexes and hepatocellular carcinomas in female mice.

There are no adequate data available to evaluate the carcinogenicity of *p*-cresidine in humans (IARC S.7, 1987).

PROPERTIES

p-Cresidine is a brown fused solid or brown flake solid with an anise-like odor. It is insoluble in water and very soluble in organic solvents. *p*-Cresidine volatilizes in steam. When heated to decomposition, it emits toxic fumes of nitrogen oxides (NO_x). *p*-Cresidine is available in the United States as a technical grade containing a minimum of 99% active ingredient.

USE

p-Cresidine is an industrial chemical that appears to be used solely as an intermediate to produce various azo dyes and pigments. These include eleven dyes produced commercially in the United States which are used in textile manufacturing (IARC V.27, 1982; NCI 142, 1979).

PRODUCTION

The 1998 *Chemical Buyers Directory* lists two U.S. suppliers of *p*-cresidine, and Chemycyclopedia 98 lists one supplier (Tilton, 1997; Rodnan, 1997). The 1997 Directory of Chemical Producers named one producer of the compound with an undisclosed amount (SR1a, 1997), whereas the USITC has not identified any companies producing *p*-cresidine in the 1990s (USITC, 1995). Current import quantities are not known and current production data are considered to be proprietary. The EPA (OPPT) High production Volume Chemicals list gives a production volume range of 0.75 to 1.64 million lb (USEPA, 1997). The 1979 TSCA Inventory identified four companies producing 555,500 lb of *p*-cresidine and five companies importing 555,500 lb in 1977, with some site limitations. The CBI Aggregate was between 1 million and

100 million lb (TSCA, 1979). *p*-Cresidine has been produced in the United States since 1926 (IARC V.27, 1982).

EXPOSURE

The primary routes of potential human exposure to *p*-cresidine are inhalation and dermal contact. Potential occupational exposure is believed to be limited to workers in dye-production facilities. According to CPSC, residual levels or trace impurities of *p*-cresidine may be present in some dyes based on the chemical and subsequently present in the final consumer product. The presence of *p*-cresidine, even as a trace contaminant, may be cause for concern. However, CPSC reported that no data were available on the actual levels of impurities in the final product or the potential for consumer exposure and uptake. The Toxic Chemical Release Inventory (EPA) estimated that 3,465 lb of *p*-cresidine were released to the environment, specifically to the atmosphere. This total was calculated from data from two companies, both located in Cincinnati, Ohio. One facility, reporting under the industrial classification for manufacture of industrial organic chemicals not elsewhere classified (SIC Code 2869), accounted for 86.6% of total air emissions (TRI96, 1998).

REGULATIONS

EPA regulates *p*-cresidine as a toxic chemical under the Superfund Amendments and Reauthorization Act (SARA) and subjects it to general threshold limits. EPA has proposed establishing report/recordkeeping requirements under the Resource Conservation and Recovery Act (RCRA) and the Toxic Substances Control Act (TSCA). FDA does not currently regulate *p*-cresidine under the Food, Drug, and Cosmetic Act (FD&CA). However, the chemical is a potential contaminant in Red 40 (Allura Red) and regulatory action is pending. OSHA regulates *p*-cresidine under the Hazard Communication Standard and as a chemical hazard in laboratories. Regulations are summarized in Volume II, Table B-30.